

Remarks

Priority document

In paragraph 1 of the Action, the Office acknowledges applicant's claim for foreign priority but notes that the certified copy of the German priority document has not yet been submitted. In response applicant submits herewith a certified copy of German application no. 199 58 569.5.

Drawing Objections

In paragraphs 2 and 3, the Office objects to the drawings under 37 CFR §1.83(a). In particular, the Office requires that drawings showing every feature of the invention specified in the claims have to be submitted.

Applicant respectfully submits the attached proposals for corrected Figures 1 and 2 as well as a brief description of the drawings as specified earlier in this response. Applicant sought to show every feature of claims 1-11 and was careful in avoiding the introduction of new matter. The Office's approval of the drawing's and their brief description are respectfully requested.

Rejections under 35 USC §112, second paragraph

In paragraphs 4-12, the Office rejects claims 1-11 under 35 USC §112, second paragraph.

In particular, the Office rejects in paragraph 6 the limitation "the thread" in lines 5-6 of claim 1 as being uncertain whether it is a reference to the male or female thread.

With respect to the reference to "the thread" on line 5, applicant has amended the term "wherein the thread is a trapezoid thread" to read "the male and female threads are trapezoid threads" to overcome this rejection. The language in line 6 has been eliminated.

In paragraph 7, the Office rejects, also under 35 USC §112, second paragraph, the reference to "the diameter" in line 6 for lack of antecedent basis.

In response and to further clarify the claim, applicant has amended the language to "the male and the female thread have a thread diameter."

In paragraphs 8-13, the Office rejects the limitations "the thread height" in line 8 of claim 1, "the root to crest clearance" in line 9 of claim 1, "the flank clearance" in line 10 of claim 1, "the pitch" in line 1 of claim 2, "the nominal diameter" in line 1 of claim 10 and "the nominal diameter" in line 1 of claim 11 for lack of antecedent basis.

In response, applicant has amended the respective limitations in the rejected claims to remove definite articles and to adjust the overall claim language accordingly.

The scope of the claims have not been affected by these amendments.

Rejections under 35 USC §103

In paragraphs 14 and 15, the Office rejects claims 1-11 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,250,567 to Lewis et al.

In particular, the Office states that Lewis et al. discloses a spray gun comprising a gun body (14), an air nozzle ring (18) and a trapezoid thread (51). The Office acknowledged that Lewis et al. does not disclose paint as well as the ranges of flank angle, thread height, root to crest clearance, flank clearance, pitch, core diameter and outer diameter tolerance, pitch tolerance, nominal diameter. The Office alleges that those parameters are known and that it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the claimed ranges/values for optimization dependent on application criteria. The Office cites In re Aller in support for the notion that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or

workable ranges involves only routine skill in the art and is therefore obvious. In re Aller, 105 USPQ 233 (CCPA 1955).

Without acceding to the Office's position that the guide threads of Lewis are equivalent to applicant's claimed thread, applicant respectfully submits that a particular parameter must be first recognized as a result effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum ranges of said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) [see also MPEP §2144.05].

Lewis discloses a plurality of trapezoidal guide threads 51 to guide the delivery tube 14 of his apparatus coaxially into position within a manifold 18. The flats 52 of these guide threads are formed to close tolerance to hold the outer diameter of the delivery tube so that the tip 30 is precisely centered within a hole in the air cap. (See column 4, lines 40 to 45). Applicants have invented and claim a modified trapezoid thread that modifies e.g. thread height, root to crest clearance, flank clearance, pitch, core diameter and outer diameter tolerance, pitch tolerance etc. to achieve one or more of the advantages described in the specification. Thus, even if Lewis guide threads could be compared to applicant's thread, what applicant denies, Lewis does not recognize that a combination of a particular thread heights, the root to crest clearances and the flank clearances (see elements of claim 1) are such result-effective variables nor that the combinations of those parameters with the additional variables as specified in claims 2-11 are result effective variables.

Thus, broadly speaking, the required motivation to modify Lewis threads to produce the claimed invention is lacking [see MPEP §2143].

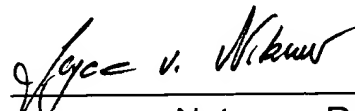
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Respectfully submitted,



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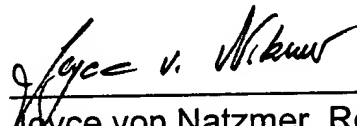
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

The paragraph beginning on page 2, line 13 has been amended as follows:

Summary of the Invention

The spray paint gun of the present invention comprises a gun body having a male thread and an air nozzle ring having female thread, the female thread being adapted to be screwed onto the male thread. The male and female threads are trapezoidal threads having [their] flank angles in the range of about +/- 20% of 30 degrees. The male and female thread have a thread diameter [is] between about 30 and about 40 mm, and are characterized by [the] thread height [is] within the range of about +/- 20% of 1.1 mm, [the] root to crest clearance [is] within the range of about +/- 20% of 0.1 mm, and [the] flank clearance [is] within the range of about +/- 20% of 0.15 mm. In this embodiment the [pitch] male and female thread may [be] have a pitch in the range of about +/- 20% of 2.5mm. The core diameter and the outer diameter of the male thread of the gun body may have a tolerance in the range of about +/- 20% of -0.05 mm, respectively. The core diameter and the outer diameter of the female thread of the air nozzle ring may have a tolerance in the range of about +/- 20% of +0.1 mm, respectively. The pitch may have a tolerance in the range of about +/- 20% of 0.1 mm.

The paragraph beginning on page 4, line 12 has been amended as follows:

In both cases the flank angle (A) is about 30° and the outer diameter of the male thread (G) is about 38 mm. The pitch (E) in the standard thread is 3 mm and in the modified thread about 2.5 mm. The outer diameter of the female thread (I) is in the standard thread 38.5 mm and is in the modified thread about 38.2 mm. The core diameter of the male thread (F) is, in the case of the standard thread, 34.5 mm and in the case of the modified thread, about 35.8 mm. The core diameter of the female thread (H) is in the standard thread 35 mm and in the modified thread about 36 mm.

The paragraph beginning on page 5, line 1 has been amended as follows:

Thus, in a standard thread the thread height of both the male and female thread is 1.75 mm (overall height 3.5 mm). In the modified thread the thread height (B) of both the male and female thread is about 1.1 mm (overall height about 2.2 mm). The crest to root clearance (C) of the standard thread is 0.25 mm, and of the modified thread about 0.1 mm. The flank clearance (D) of the standard thread is 0.22, and in the modified thread about 0.15.

In the Claims:

Claims 1, 2, 10 and 11 have been amended as follows:

1. (amended) A spray paint gun comprising a gun body having a male thread, and an air nozzle ring having female thread, the female thread being adapted to be screwed onto the male thread, wherein the male and female threads are [is a] trapezoid threads having: a flank angle^A in the range of about +/- 20% of 30°, wherein the male and female thread have a thread diameter [of the thread is] between about 30 and about 40 mm, and wherein the male and female thread are characterized by:
 - [a.] [the] thread height^B within the range of about +/- 20% of 1.1 mm,
 - [b.] [the] root to crest clearance^C [is] within the range of about +/- 20% of 0.1 mm, and
 - [c.] [the] flank clearance^D [is] within the range of about +/- 20% of 0.15 mm.
2. (amended) A spray gun according to claim 1, wherein the male and female are further characterized by a pitch [is] in the range of about +/- 20% of 2.5 mm.
10. (amended) A spray gun according to claim 1, wherein the [nominal diameter of the trapezoid] male thread has a nominal diameter of [is] about 38 mm.
11. (amended) A spray gun according to claim 2, wherein [the nominal diameter of the trapezoid] male thread has a nominal diameter of [is] about 38 mm.